

20. ON THE DISTRIBUTION AND HABITAT OF THE
HIMALAYAN NEWT (*TYLOTOTRITON VERRUCOSUS*
ANDERSON) IN THE EASTERN NEPAL

(With a plate)

A detailed account of the Himalayan newt belonging to the genus *Tylototriton* (Caudata: Salamandroidea) was published by Anderson (1871), which was based on a collection from western Yunan. Annandale (1908) was the first to record the breeding habit of the Himalayan newt. Smith (1924) described the tadpoles and Chaudhari (1966) studied the habits and behaviour.

Soman (1966) reported the newt from the Dingla (Nepal) and made a brief comment on the eastern distribution of the newt. Further, Mansukhani *et al.* (1976) recorded the newt from the Arunachal Pradesh of India. Recently, the generic status of the *Tylototriton* has been reviewed by Nussbaum and Brodie (1982). The present find from various localities

of eastern Nepal is of considerable significance for it extends the known range of distribution of the species further westward and throws light on the ecology of the newt.

While studying the aquatic vertebrate fauna of the rock pools along the hills of the eastern Nepal, five examples of the Himalayan newt of the genus *Tylototriton* measuring from 130 to 200 mm (Table 1) were collected and have been identified as *Tylototriton verrucosus*. There being no detailed previous record on the Newt from eastern Nepal so far, the present report on the urodel from different areas is an attempt to provide information on the distribution and habitat.

Material Examined 5 Examples. Chulachuli hills, lat. 26°55', long. 87°55', 1900 m. Mai river valley, lat. 26°55', long. 87°20', 1300 m. Hilae Dhankuta, lat. 26°59', and long. 87°21'. Maipokhari (Ilam), lat. 26°55', long. 87°54', 1300 m. One of the specimen has been deposited in the British Museum and rest are deposited in the Zoological Museum, Tribhuvan University, Kirtipur Campus.

Palatine series of teeth forming a $\wedge$, commencing on a line with, or a little in front of, the choanae. Head somewhere broader than long, surrounded by a distinct osseous porous ridge, a short similar ridge along the parietals, snout short, broad, eyes moderate, no labial lobes. Body 3 to 3.5 times the length of the head, no dorsal crest, but a broad prominent porous vertebral ridge, produced by the great development and transverse expansion of the neural processes of the dorsal vertebrae a series of 15 or 16 knob-like porous glands along the side,

TABLE 1

MEASUREMENT OF *Tylototriton verrucosus*
ANDERSON

Total Length	137.0	170.0	200.0	166.0	130.0
Head Length	13.2	20.0	26.0	20.0	18.0
Width	15.2	20.0	21.6	19.0	16.0
Interorbital	8.0	9.0	10.0	8.0	8.0
Internasal	6.0	6.0	7.0	6.0	6.0
Orbit	4.0	4.0	4.0	3.0	3.0
Snout to gular fold	15.0	21.0	22.0	20.0	17.0
Gular fold to vent	43.5	70.0	75.0	52.0	52.0
Axilla to groin	33.6	50.0	55.0	40.0	32.6
Tail Length	65.0	85.0	95.0	82.0	81.0
Length of forelimb	20.0	26.2	29.0	26.0	28.0
Length of hindlimb	21.6	26.4	30.0	28.0	27.0

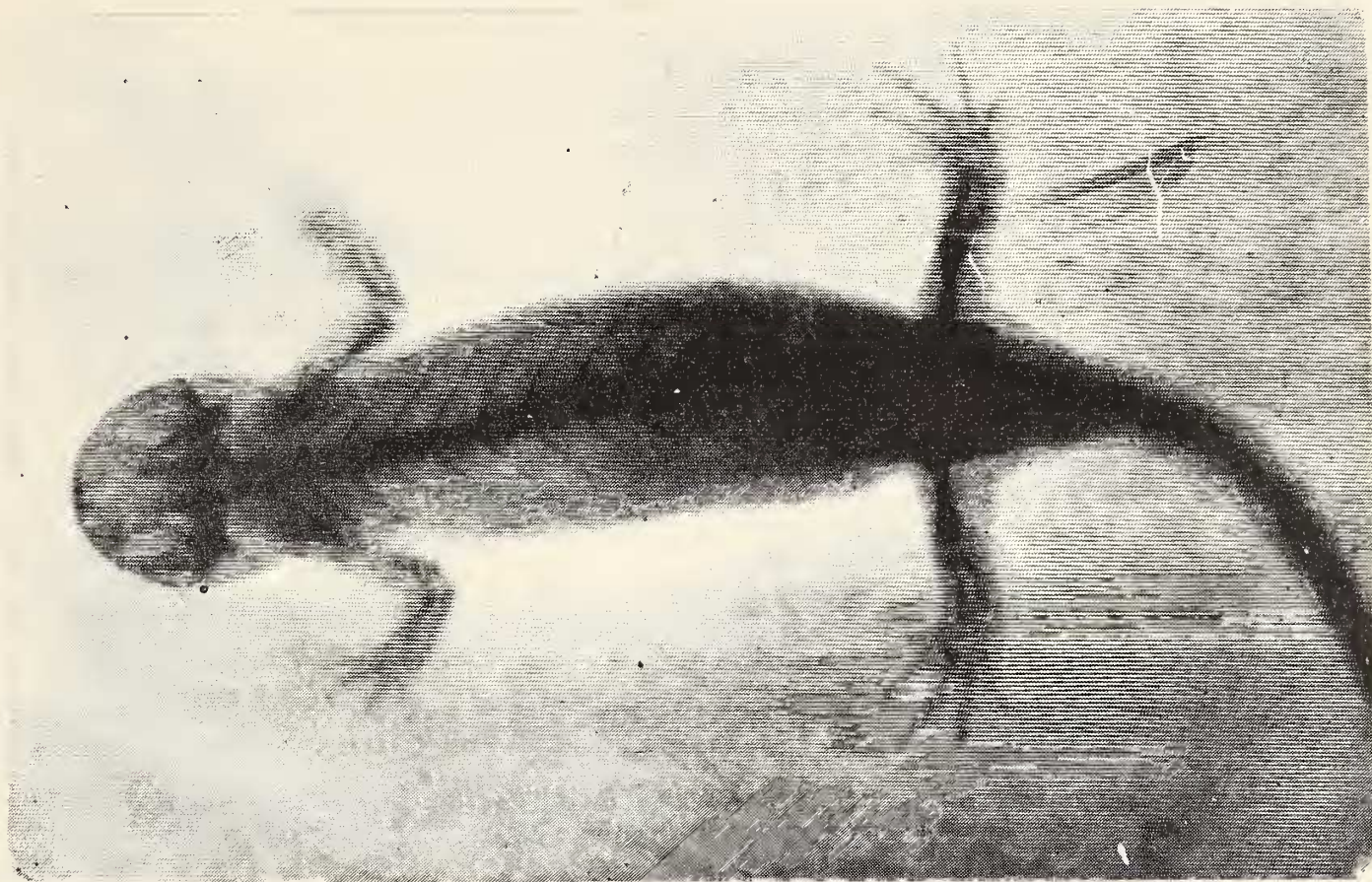
the last three behind the leg when it is extended at right angles to the body. Limbs moderate, fingers and toes free, depressed. Tail as long as head lower crest, ending in a point. Anal opening a longitudinal slit, the borders not much swollen. Skin tubercular, parotoids large, very distinct, a strong gular fold. Colour. Uniform blackish brown, paler on the lips, snout, chin, throat, and under surface of limbs, lower of tail orange-yellow. (Body measurements are given in the Table 1; Plate I).

The newt occurs in the upland pools of the Chulachuli hills. As such the water quality of the pools varies from time to time and sometimes becomes highly acidic (pH 4 to 6) during the late spring (April-May). The oxygen concentration varies from 5 to 10 ppm and temperature ranges from 15° to 25°C. During the rainy season the newt inhabits shallow, recently flooded rock pools, rice fields and boulder strewn creeks flanking the course of the Mai river and Rautae khola (hill stream). Lurking in the crevices between large, partially submerged boulders it shares its niche with typical mountain brook hylid and rhacophorid frogs as well as many a genera of the aquatic insects such as *Belostoma*, *Rantara*, *Perla* and *Ephimera* and *Anax*. During the night the newts leave their shelter and move about actively. They also wander far from the water holes and water loaches. The newt is an excellent example of camouflage and concealment and is rather difficult to locate in the pond as it blends perfectly with water weeds. They are encountered through rainy season but more frequently in premonsoon rainy days (May and June), which is apparently their breeding season. The chief food of newt appears to be zoo-benthos, mushrooms, aquatic insects and tadpoles. The newts lead a terrestrial life during the cold days of the winter and lie sheltered under a decaying log or wood near

water. On two occasions I collected hibernating newts during the month of December. They showed very little movement on handling. There was no water hole near the hibernating dens. During December the atmospheric temperature ranges from 9° to 15°C. Probably the newt emerges out of the hibernation dens after the first rains in the spring and breeds in the pools formed in the latter part of the spring (April to May).

In Nepal the Himalayan newt is known as *Pani kukur* (Water Dog) and *long-ling* (animal with a long tail). The dried and smoked preparation of newt is used by witch doctors as a cure for typhoid and gastric ailments. Newts are susceptible to water pollution and complete ban of detergents should be made in newt habitat. The Himalayan newt is on the verge of extinction in Nepal and is scarcely available for detailed study.

The newt has been reported from various places in Asia. For example, Anderson (1871) recorded it from Yunan and China, Kakhein hills of upper Burma, Chien Deo in Northern Siam and Darjeeling, Sikkim. Smith (1924) gives an idea of its past distribution in India. According to him '*Tylototriton verrucosus* is common at certain places in Darjeeling district at altitude 4000 to 6000 ft, but is very local. I have been unable to obtain any evidence of its occurrences west of the Tista river'. But Soman (1966) reported the newt from the Dingla district of Nepal (Lat. 27°22' and Long. 87°09') and furnished the proof of more western distribution of the newt. My collection from various areas of east-west Nepal reveals that distribution of the newt is not so local as it was believed previously. The newt can be found far west of Tista in isolated pockets of the Siwalik and Mahabharat hills where humidity and temperature are favourable.



Above: X-ray photograph of the Himalayan Newt. Note unbranched ribs and limb structures.
Below: Newt in the Natural habitat of Mai river valley. They avoid direct sunlight at the day time.